

Weekly Report

2017.05.22-2017.05.30

1. This Week

Wavelines

- 1.read papers about temporal data and anomaly detection and refine ideas from these papers
- 2.have a talk with Guo Fangzhou and propose a few possible directions:
 - abnormal correlation detection: 1. level 1: abnormal numerical variation of single variate (can be thought as self-correlation) 2. level 2: abnormal correlation between pairwise variate of single device 3.level 3: abnormal relationships between pairwise devices in the power grid. The problem is how to define so much correlation and relationships and the boundary between normal and abnormal.
 - apply dynamic network analysis methods into power grid stability analysis. The problem is that this idea is so far covering a wide range and need to be narrow down.

Engineering training

- 1.learn about basic git techniques and git version control theories
- 2.learn about standard google coding style
- 3.train on algorithm development
- 4.train on simple team project development

Network Security

- 1.write the acceptance document

Others

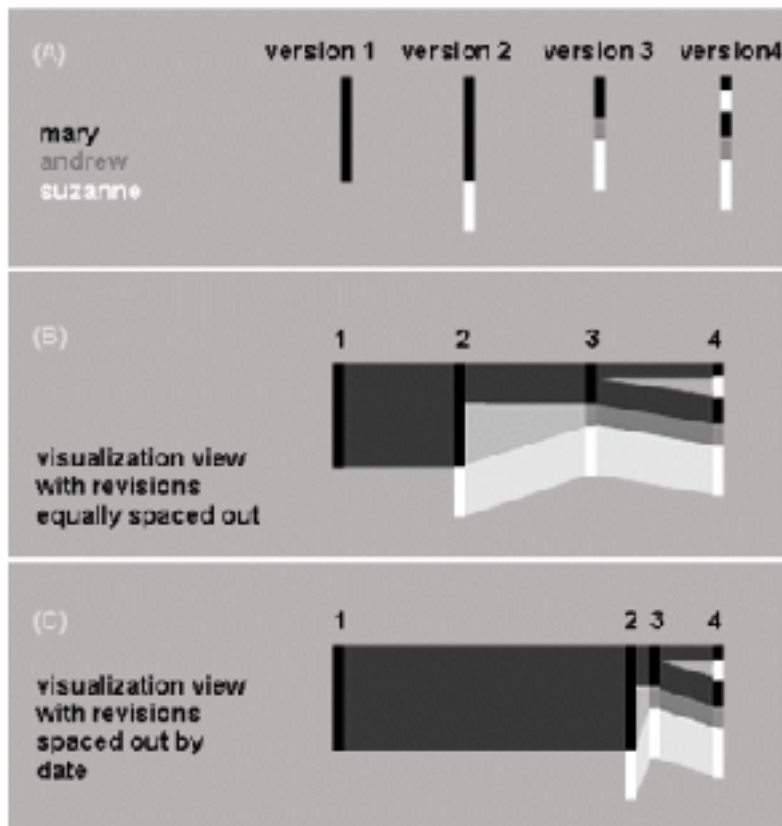
- 1.Revise the 5th chapter of the treatise: uncertainty data visualization
- 2.Prepare for the group meeting and report on the group meeting
- 3.Help Zhang Qin revise the abstract of his paper
- 4.Do homework for the seminar courses

paper reading

1.The Connected Scatterplot for Presenting Paired Time Series

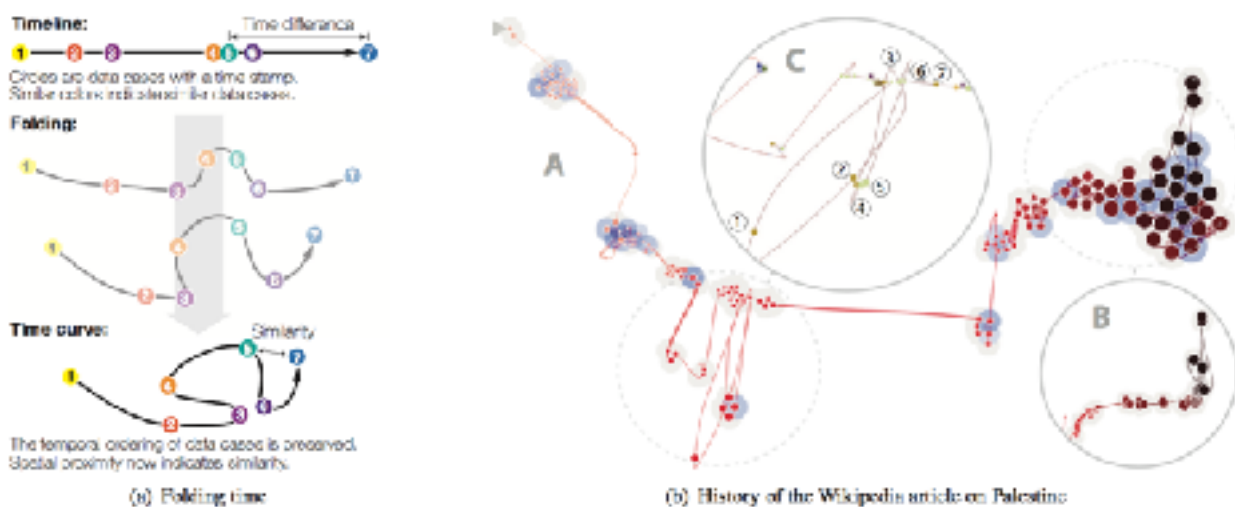
This paper introduce the connected scatterplot technique for presenting paired time series by encoding the pairwise variates on the two axis and presenting time information by linking the points.This paper provides four user studies to evaluate the advantage and disadvantage of the connected scatterplot and other technique represented by dual axis line chart. The result of these user studies do not show stronger advantage of connected scatterplot on presentation tasks but do not discuss the potential of connected scatterplot on visual exploration tasks.

2.Studying Cooperation and Conflict between Authors with history flow Visualizations



This paper presents a flow like tool to visualize how collaborative documents on wikipedia evolve over time. The major design is presented as the above picture. Each version of the document is encoded by a bar, and each part of the bar from top to bottom corresponds to the part of the document. Colors of the flow and each part represents the author revising this version. Such design may suffer greatly because of too much color encoding.

3. Time Curves: Folding Time to Visualize Patterns of Temporal Evolution in Data



This paper presents a simple visual overview technique that reveals patterns in temporal datasets by folding the time axis. The time curve folding principle is simple: a timeline is folded into itself in a way that similar time points end up being close to each other. The only problem of timeline folding

in this way is similarity metric. Such method may be appropriate for timely sparse data but not that proper for time series because of the potential complex patterns and visual occlusion.

2. TODO

- 1.treatise writing
- 2.keep up with the wavelines and network security project
- 3.Prepare to get to know the future directions of the wavelines system and get start with it.